REMARKS

This is a response to the non-final office action mailed on May 10, 2007.

Claims 1-21 are amended. Claims 22-30 are new. No new matter is entered.

Regarding active components, see the specification, e.g., par. 35.

Regarding converting optical power into electrical power, see, e.g., the photovoltaic converter 13 in Fig. 1.

Regarding converting the electrical power into a form that is required to power at least one active component, see the specification, e.g., par. 35.

Regarding amplifying radio frequency signals, see, e.g., amplifiers 7 and 8 in Fig. 1, and par. 33.

Regarding a high power laser diode, see the specification, e.g., par. 41.

Regarding providing a radio connection point for mobile terminals in an associated coverage area, see the specification, e.g., par. 36.

Rejection under 35 U.S.C §112, second paragraph

Regarding paragraph 2 of the Office Action, claim 21 has been amended in response to the rejection under 35 U.S.C §112, second paragraph.

Rejection under O'Shea

Regarding paragraph 4 of the Office Action, claim 17 has been rejected under 35 U.S.C §102(b) as being anticipated by US 6,362,906 to O'Shea. Applicants respectfully traverse the rejections. O'Shea provides a flexible optical RF receiver. The receiver includes a flexible substrate with an array of receiving circuits. Power for operating the receiving circuits and all signal paths to and from the receiving circuits are accomplished via optical fibers. Photocells are provided within the receiving circuits for conversion of optical power to operating electric power (abstract). In particular, an optical fiber 70 provides power for operating an optical modulator 106 (Figs. 9 and 12, col. 5, lines 48-55). The optical modulator provides an optical output on an optical fiber 54 which is received at a receive beam former 90 (Fig. 9).

However, O'Shea is not concerned at least with amplifying a radio frequency signal using electrical power obtained from radiation in an optical fiber power link to provide an amplified radio frequency signal, and converting the amplified radio frequency signal to an optical data signal as set forth in claim 17. O'Shea provides no such amplification of an RF signal. Instead, a received RF signal is processed using a wide band RF filter 108, a broad band RF ring mixer 110 and a narrow band IF filter 112 (col. 7, lines 62-65).

Claim 17 is therefore clearly patentable over O'Shea.

Rejection under O'Shea and Miyazaki

Regarding paragraph 6 of the Office Action, claims 1-4, 7-10, 12, 14-16 and 21 have been rejected under 35 U.S.C §103(a) as being unpatentable over US 6,362,906 to O'Shea in view of US2003/0118280 to Miyazaki. O'Shea is discussed above. Miyazaki provides an optical transmission system which includes a control station (CS) and a radio base station (BS), where the base station does not require an electrical supply. The CS 10 provides an output on an optical fiber 30 to a photo detector 44 at the base station 40. The photo detector converts the input light into an electrical signal and sends the electrical signal to a port A of a diplexer 46. An antenna 42 is driven by the output from the photo detector for emitting a downstream signal to a mobile terminal 60. The antenna 42 also receives an upstream signal from the mobile terminal, and provides it to port B of the diplexer. The diplexer provides the signal to an optical modulator 48 through a port C. Laser light provided from the control station via an optical fiber 32 is input to the optical modulator. The light is reflected in the optical modulator, modulated by the upstream RF signal from the antenna, and a portion of the modulated light is reflected back along the optical fiber 32 to the control station. See Fig. 1 and par. 47-56. The antenna 42, photo detector 44, diplexer 46 and optical modulator operate without an electrical power supply (par. 59).

Accordingly, Miyazaki is not concerned with providing electrical power at a remote unit because all of the components of the remote unit operate without an electrical power supply. Thus, it would not be obvious to combine O'Shea and Miyazaki because Miyazaki is specifically concerned with a base station which can operate completely without electric power supply (par.

59) while O'Shea provides an array of receiving circuits in which power for operating the receiving circuits is provide by optical fiber.

Further, Applicants' claim 1 sets forth at least one remote unit which provides a radio connection point for mobile terminals in an associated coverage area. It would not be obvious to combine O'Shea and Miyazaki also because O'Shea is not concerned with providing a radio connection point for mobile terminals in an associated coverage area. Instead, O'Shea only provides a receiver with a receive capability for an aircraft or satellite. Such a device does not provide a radio connection point for mobile terminals in an associated coverage area.

Claim 1 is therefore clearly patentable over O'Shea and Miyazaki. The dependent claims thereof are similarly patentable.

Regarding independent claim 15, this claim sets forth a remote unit which includes means for converting optical power from at least one optical fiber power link into electrical power, and means for converting the electrical power into a form that is required to power a means for converting optical data signals to radio frequency signals.

As discussed, O'Shea uses an optical fiber to provide power for operating an optical modulator 106 (Figs. 9 and 12, col. 5, lines 48-55). However, O'Shea does not disclose or suggest using a means for converting electrical power into a form that is required to power a means for converting optical data signals to radio frequency signals. For example, as set forth in claim 29, which depends on claim 15, the means for converting the electrical power can convert the electrical power into a constant voltage or a constant current form. In one approach, a regulator 14 may be used (Applicants' specification, par. 35, Fig. 1). Miyazaki similarly does not disclose or suggest this feature since Miyazaki's base station operates completely without electric power supply.

Claim 15 is therefore clearly patentable over O'Shea and Miyazaki.

Regarding independent claim 16, this claim sets forth amplifying a radio frequency signal using electrical power obtained from radiation in an optical fiber power link to provide an amplified radio frequency signal, and sending the amplified radio frequency signal into free space through at least one antenna connected to the remote unit. O'Shea does not provide transmission of RF signals. While Miyazaki provides transmission of RF signals, Miyazaki does

not disclose or suggest amplifying a radio frequency signal which is transmitted in free space. Instead, Miyazaki drives an antenna 42 using the output directly from a photo detector 42.

Claim 16 is therefore clearly patentable over O'Shea and Miyazaki.

Regarding independent claim 21, this claim sets forth a remote terminal which provides a radio connection point for mobile terminals in an associated coverage area, where the remote terminal includes an antenna to receive and send radio frequency signals, an optoelectronic transducer for converting optical data signals to radio frequency signals for the antenna and for converting radio signals to optical signals for transmission to the central unit, and means for converting radiation transmitted from the central unit to electrically power the remote unit.

It would not be obvious to combine O'Shea and Miyazaki because O'Shea is not concerned with providing a radio connection point for mobile terminals in an associated coverage area. Instead, O'Shea only provides a receiver with a receive capability for an aircraft or satellite. Such a device does not provide a radio connection point for mobile terminals in an associated coverage area. Further, Miyazaki teaches against the proposed combination because Miyazaki's base station operates completely without electric power supply and is therefore incompatible with O'Shea's system, which provides power for operating receiving circuits via optical fiber.

Claim 21 is therefore clearly patentable over O'Shea and Miyazaki.

Rejection under O'Shea, Miyazaki and Tsuji

Regarding paragraph 7 of the Office Action, claims 5, 6, 11 and 13 have been rejected under 35 U.S.C §103(a) as being unpatentable over US 6,362,906 to O'Shea in view of US2003/0118280 to Miyazaki and further in view of US 5,664,035 to Tsuji. Tsuji provides a field station which acts as a sensor to measure temperature, pressure, etc. or as an actuator which adjusts temperature, pressure, etc. (col. 1, lines 15-21), such as in an explosive environment. The field station converts a portion of a light beam to electric power for powering the field station (abstract). The Office Action asserts that it would be obvious to replace the optical Mach Zender modulator 48 of Miyazaki with a laser, as an engineering design choice. However, the optical Mach Zender modulator 48 is important to Miyazaki because it allows the base station to operate completely without electric power supply (par. 59). A laser which requires electric power supply

would thus be incompatible with Miyazaki's system and contrary to Miyazaki's teachings. Further, Tsuji does not disclose or suggest transmitting or receiving RF signals and is therefore concerned with a different technical problem than that addressed by Miyazaki and O'Shea. The proposed combination could therefore only be made with hindsight gained impermissibly from the present invention.

Withdrawal of the rejection is therefore respectfully requested.

Rejection under O'Shea, Miyazaki and Specht

Regarding paragraph 8 of the Office Action, claims 18-20 have been rejected under 35 U.S.C §103(a) as being unpatentable over US 6,362,906 to O'Shea in view of US2003/0118280 to Miyazaki and further in view of US 6,414,958 to Specht. Specht provides a system for communicating between ATM LANs using a satellite communications network. In this system, master stations 725 and 735 have associated Ethernet hubs 730 and 740 that recognize which data traffic belongs to which network (Fig. 7, col. 10, lines 38-40). The Office Action asserts that it would be obvious to combine the references as asserted to use Ethernet, with digital signals, over RF to provide a geographically expanded LAN communications. However, O'Shea and Miyazaki provide no disclosure or suggestion of converting optical data signals into baseband digital signals and converting baseband digitals signals to optical data signals as set forth in claim 18. Instead, O'Shea is concerned with a flexible optical RF receiver for a satellite or aircraft while Miyazaki is concerned with a base station that communicates with mobile terminals. Accordingly, a person of ordinary skill in the art would not be led to combine the references as asserted in the Office Action.

Claim 18 is therefore clearly patentable over the cited references.

Dependent claim 30 is similarly patentable. Claim 30 sets forth that a remote unit provides a radio connection point for mobile terminals in an associated coverage area, and a means for converting optical data signals into baseband digital signals and converting baseband digitals signals to optical data signals communicates with a local area network.

Withdrawal of the rejection is therefore respectfully requested.

In view of the above, each of the pending claims is believed to be in condition for immediate allowance. The Examiner is therefore requested to pass this application on to an early issue. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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